of tanned buckskin with lacing like that on skirts at top of shoulders and from armholes down sides, and with 10 to 12-in. laced slit in front from neck downward, worn against cold (FP).

Bearskin robes with hair left on may have been worn occasionally, but were "too heavy" (SM). Feather, squirrelskin capes never made; sea-otter capes not obtained in trade though SM had seen them worn by Chumash at Ventura.

Shamans engaged in curing, competitive contests, and dancers wore skirts (wi·la·t) made same style as Owens Valley Paiute, Koso skirts (Steward, 1933, 347, pl. 7d; Kroeber, Handbook, 508, pl. 42a). Some dancers also wore bands of yellowhammer feathers around waist (FP).

Men when hunting in winter kept fingers warm, limber by putting them inside wildcatskin quiver, which had hair left on inside and was worn slung across chest.

Headgear and footwear.- Men went hatless; women wore coiled basketry cap (pongat) when using pack strap for carrying loads, but not habitually; these caps round at top, came down nearly to eyebrows. Hair nets not used. Men rarely seen now outdoors without hat; women wear them less frequently; FP habitually wore black cloth stocking cap resembling basket cap in shape. Some 60 years ago FP's aunt (Koso) made coiled hats of same material used for basketry cap, but patterned hats like "store hats"; sold these to several Tübatulabal men who wore them "all the time" (FP, SM).

Shamans and dancers wore feather headdress consisting of fillet (še·mapun) of eagle down, and crown (anambul) of magpie (?) feathers, similar to Owens Valley Paiute dancer's headdress (Steward, 1933, 347, pl. 7a, b).

Moccasins (wahcibi·l), made from tanned buckskin taken from neck region of deer "where the hide is thick" (SM); made to extend well above ankle (fig. 3). FP in cutting out model in cloth

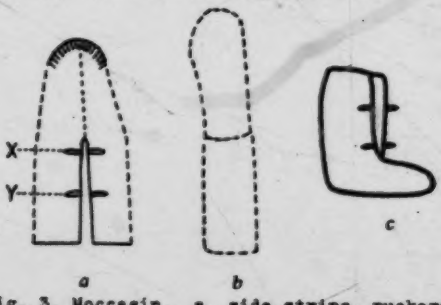

Fig. 3. Moccasin. a, side strips, puckered at toe ends; thongs at x and y; seams occur along dotted lines. b (upper half), sole, (lower half), back strip. c, completed moccasin.

(Mus. cat. no. 1-28226) first cut out sole, then sewed straight piece of cloth 6 in. long, 3 1/2 in. wide onto back section of sole and then 2 straight pieces 12 in. long, 4 in. wide on sides and front of sole, puckering 2 pieces at toe end.

[p. 22 (b)]

302 [765] sun, woman bound string around head, hair rolled up to project over string, thus shading face. At death of husband woman burned back hair to neck length (Gayton, 1929, pl. 95a, b). Bulb of soaproot (ho·olo·hpi·l), Lathoe pomeridiana (DC) Raf., pounded, or roots Chenopodium californicum Wats. [824] [388] (ho·oha·l) pulverized by rubbing on rock, and used for shampoos; later these and inside of fruit [515] of Cucurbita foetidissima HBK (ïihabï·l) used also to wash cotton clothes. Women brushed hair [296] every day; Garcés comments (p. 282), "women . . . take great care of the hair and do it up in a topknot (copéte)," probably referring to rolling up of hair to project over string (above). [515] Lice removed by washing hair with alkali (pi·šil) solution and letting powder stay on scalp for several days. At dances women put loose eagle [301] down in bangs. Children wore hair loose, girls of 5 having bangs.

303 Brush (wïŋït) made from fibrous outer sheath of soaproot; bulb dug in March-April when plant green, outer sheath removed, shredded, and 3 bunches of fibers, each 3/4 in. wide, 4-5 in. long, twined together at one end with native [413] string to form flat, narrow brush. This hairbrush similar to one women used when pounding meal, tobacco, except that mealing brush was wider, consisting of 4 bundles of fibers twined together. Museum specimen 1-19800 has fibers wrapped at lower end with sinew (?) to form triangular handle; said to have been "used for hair and flour." Porcupine tails, pine cones, pine needles never used for brushes.

302 Nails kept short by filing them on piece of rough rock, or else allowed to grow long, break off.

515 Both sexes bathed frequently, summer and winter, in pools at springs or in streams; "the young men are fine fellows, and the women very comely and clean, bathing themselves every little while" (Garcés, 282).

301 Ornaments.- Necklaces of white clamshell disks (tugumbal) worn by women only, chiefly at dances. Small concave white shell beads, olivella shells, [177] long shell cylinders (hobo'apïn) made from columnella of giant clam (?), and in historic times red, blue, black glass beads used in combination [439] for necklaces (pl. 6b). Both shell and glass beads, shell cylinders obtained from Chumash, who made shell beads, and also to some extent from Yokuts.

Nose plug (mupipugišt) made from shell cylinder; 2-3 in. long, 1/4 in. thick; worn by women only "when they danced." Women also wore strings of small clamshell beads in nose (FP). Earrings (nangawili'at) consisting of short strings of clamshell beads worn by women only. Bracelets (mašabu·nun) of clamshell or other beads worn by young girls. Men "never wore anything" in way of bead ornaments (SM, FP).

302 Facial decoration.- Paint made from red earth (yahawa·l) mixed with water, smeared over face by

177
372 steel, but we used the 2 pieces of stone and no
462 steel" (SM). Quartz for these strike-a-lights
[439] obtained from Koso Indians at Koso (FP).

Firewood.- Small trunks of willow (ha·l),
313 Salix laevigata Bebb., branches of Fresno tree
(a·wilibï·l), Fraxinus oregana Nutt., stream
alder (pawiču·l), Alnus rhombifolia Nutt., and
dry oak used chiefly for firewood (kutuga´t);
cottonwood (u·'ut, generic name for tree), "too
light" (SM). Firewood broken into 3 to 3 1/2-ft.
lengths for carrying in pack basket; women
[462 packed on back loads of slightly longer lengths,
482] but "not too heavy" (FP); men brought in larger
pieces on shoulder.

GLUE, PITCH, AND ASPHALT

381 Glue.- Deer horns boiled in small amount of
water, in pot, to obtain glue (a·wadin pa·hn,
horn water); used to apply sinew backing to bows.

314 Pitch.- Several varieties pitch (ša·num) used
824 for different purposes; pitch from Digger pine
415 applied to soles of moccasins to make them wear
longer (FP); pitch from bull pine smeared over
torches used in quail hunting. Basketry water
bottles made watertight by putting handful of
red earth of same variety used for face paint,
plus lump of piñon-pine pitch inside finished
bottle, together with quantity of heated pebbles
about size of person's thumb. Hot pebbles shaken
vigorously inside basket for 5-10 minutes, thus
causing pitch to melt, combine with red earth,
and coat inside of container. Hot melted pitch
also smeared over outside of bottle with small
stick; when it had cooled slightly red earth,
mixed with little water, was smeared on top and
mixed in with pitch coating. The red earth, used
in combination with the pitch, made water "taste
sweet"; if pitch alone used, water had "bitter"
taste.

Pitch or gum (ya·bul), obtained from grease-
wood, used to fill walnut-shell dice (FP).

317 Asphalt.- Lumps of asphalt brought into area
[439 by "the Indians from around Ventura, when the
574] latter came up for piñons. The Tübatulabal also
visited at Ventura, and one of the things they
brought back from the ocean was asphalt" (SM).
This commodity used in variety of ways, some of
which were: to attach prong to shaft of harpoon,
to attach bone point to fish hook, to cement
foreshaft in cane mainshaft of arrow, and socket
arrowheads into foreshaft, to secure knife blade
in handle, to attach basket hopper to mortar.
Asphalt also used to smear over fishlines made
of native twine, and lumps of it served as knob
handles for bone, cactus spine awls. Asphalt was
softened by melting; often applied with small
stick. Gifford and Schenck (p. 58) also note
presence of asphalt beds on surface in hills SW

249 been wrapped piled up around sides of canvas to form windbreak and barrier against straying fowls. By middle of July, or 10 days after being unwrapped, tobacco considered sufficiently dry; it was gathered up from canvas and it almost filled 50-lb. flour sack.

Next step was to pound tobacco. Early one morning FP took the tobacco, round coiled basketry tray, and small brush, up to SM's rancheria where ES lived, and 2 women prepared to pound tobacco in pit mortar holes on rancheria. Two youths cut some scrub oak and made rude arbor almost completely encircling pit mortar bed, and in this shady workplace FP and ES sat down, as described by Gifford (Gifford, 1932 b, 24), and started to pound tobacco, using for pestles rude boulders 12-15 in. long, 3-4 in. thick, which were at mortar bed. Each woman put double handful of tobacco into hole and pounded with steady up and down motion, pestle being grasped near its top end with both hands and not being lifted more than 12 in. above mortar hole. When tobacco leaves well pulverized powdered tobacco scooped out of mortar with both hands and piled up on basket tray, which was shaken gently from side to side with occasional flip up and down, until coarse and fine particles were separated. Fine portion was put in empty sack, coarser powder returned to mortar hole for additional pounding. What loose tobacco fell around edges of mortar hole brushed back into hole with soaproot brush; later when pounding finished, basketry tray also dusted off with brush. When all tobacco had been pounded into olive-drab-colored powder which was about as fine as snuff, total amount half-filled 50-lb. flour sack. This work took ES and FP 2 hours to accomplish; pounding tobacco not considered by either of them as hard work as pounding acorns, "because tobacco is dry" (ES).

Within next 2-3 days, FP made tobacco into balls and plugs (pa·mil). An infusion of whole fresh tobacco plants, which she gathered near her home, was obtained by boiling the plants in water 1-2 hours, "until the water was black, like coffee" (ES). This infusion was then strained, allowed to cool, and added to powdered tobacco in sufficient quantity to make stiff dough, which was kneaded with hands, and shaped into oval balls 3-4 in. long and little less than 3 in. thick, or into plugs 5 x 5 x 1 in. Plugs made by putting dough into 4-sided, top and bottomless form, similar to those used in making [177] adobe bricks, which rested on flat piece of wood; use of these forms not aboriginal, all tobacco having formerly been made up into balls. Balls and plugs were then set on plank in sunny place to dry for about 10 days; when thoroughly dry tobacco ready to be used. In final form, crop 435 gathered by ES, FP, and LT yielded 10 plugs, 14 balls; ES given as her share 5 balls. Both balls [438 and plugs valued in 1932 at $3 apiece; constituted, both in aboriginal times and to some ex- ● 439] tent today, article of intra- and intertribal trade (Voegelin, 1935 b, 299).

484 statement (Voegelin, 1935 b, 221). Within Tüba-
487 tulabal area trails lay chiefly along ridges.

Marriage statistics for last 80-90 yrs. also
582 give indications of groups with whom there has
648 been intimate contact; 98 marriages recorded of which there were 17 Tübat.-Tübat.; 7 Tübat.-Palagewan; 2 Tübat.-Bankalachi; 7 Tübat.-Owens Valley Paiute (several relatively recent); 6 Tübat.-Koso; 14 Tübat.-Kawaiisu; 12 Tübat.-Yokuts, mainly Tejon Yokuts; 4 Tübat.-Chumash; 1 Tübat.-Yaqui; 18 Tübat.-white (Mexicans, Frenchmen, Americans).

● 439 From Chumash, Tübatulabal obtained shell
422 money, shell cylinders, steatite, probably, and in later times horses; these exchanged for
437 piñons. They also took advantage of trading trips to Chumash to collect lumps of asphalt from beach and to fish in ocean. Occasionally Chumash made reciprocal visits. In trading, "a sack of piñons was left on the ground; the Ventureños came up, and took as many as they wanted, and laid shell money down in payment" (SM). No bargaining; goods had fixed price (see below). Shell money, certain varieties of acorns obtained from Yokuts (Monilabal), in exchange for piñons.

439 In fall of 1932 SM and MM visited Northfork
484 Mono on trading trip (Voegelin, 1935 b, 239).

Dried meat mentioned most frequently as com-
431 modity traded intratribally, in winter especially;
773 in myth Coyote buys meat with shell money (Voegelin, 1935 b, 199). Yellowhammer bands another trade article within tribe.

436 Currency.- Clamshell disks (tugumba·l) standard currency; disks kept strung on native twine, strings coiled and stored in money jars (see section on Basketry) or, if person had large quantity currency she hid part of it away in skin sacks. Perforated shell cylinders (hobo·apun), which like disks were obtained already made up from Chumash, came in 2 sizes; used chiefly for necklaces, nose plugs, but sometimes kept in money jars, served as currency. Olivella shells,
[825] haliotis shell known, but not used for currency; dentalium unknown to informants.

Smallest unit of measure in clamshell currency was ya·nẓil, double length of index finger or about 8 in. Standard unit (ki·la·hil) measured twice around circumference of palm and fingers, about 45 in.; this also known as hĭštɬh; cf. Yokuts, hista, Chumash stü, for string this length (Kroeber, Handbook, 565).

435 Largest unit (pu·wil) was 16-hĭštɬh string, about 45 ft. In terms American money, ya·nẓil = 1 cent, hĭštɬh = 10 cents, pu·wil = $2. Informants realized 16-hĭštɬh string or pu·wil should have been equated to $1.60. Shell cylinders 3 in. long worth one hĭštɬh; those 5 in. long double.

Woman's sifter worth 8 hĭštɬh ($1); whole deer, yellowhammer quill band pu·wil ($2); horse, 70 yrs. ago, 5 pu·wil ($10). In 1932 10-lb. bag of chia seeds offered to SM for $2, which was "too high" (SM); plugs, balls of tobacco were selling for $3.